



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,149	12/04/2001	Tracy J. Kimbrel	00280683AA	8249
30743	7590	01/18/2006		
WHITHAM, CURTIS & CHRISTOFFERSON, P.C. 11491 SUNSET HILLS ROAD SUITE 340 RESTON, VA 20190			EXAMINER KRISCIUNAS, LINDA MARY	
			ART UNIT 3623	PAPER NUMBER

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/000,149

Applicant(s)

KIMBREL ET AL.

Examiner

Linda Krisciunas

Art Unit

3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Inventorship

The following non-patent literature was found during a prior art search: "Online Server Allocation in a Server Farm via Benefit Task Systems" by T.S. Jayram, Tracy Kimbrel, Robert Krauthgamer, Baruch Schieber and Maxim Sviridenko, STOC'01 July 6-8, 2001. This art would constitute a rejection under U.S.C. 102a since it contains a different inventive entity than the patent application. Please confirm the inventorship of the application and/or the non-patent literature in your response to this office action.

Specification

1. The abstract of the disclosure is objected to because page 1 lines 5 and 8 contain blank spaces. Please enter the corresponding application numbers. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Boyd et al (US 2005/0256778).

As per claim 1, Boyd teaches resource allocation comprising: associating each customer's demand with a benefit gained (paragraph 241: "Turning now to FIG. 14, another embodiment of the present invention provides a configurable pricing optimization system 1400. The configurable pricing optimization system 1400 includes a price optimization application 1410 that operates by defining a optimization problem and producing an optimal pricing solution 1420 to the defined optimization problem. As described above, the present application describes a value evaluation and recommendation for promotions on a targeted product so as to analyze, evaluate, improve, and design promotions to meet a user's need" whereby the customer's demand for the product will affect price and improve the profit to the company.); and finding a time-varying resource allocation that would yield a benefit (paragraph 241: the time varying resource is the "dynamic pricing system" since it changes periodically depending upon demand).

As per claims 2, 13 and 23, Boyd teaches discounting future benefits (paragraph 244: "boundaries and constraints" whereby these features represent a discounting action since the boundary on the price achieved in the future would need to take into consideration the time-value of money); and finding optimal allocations of resources from current time through current time plus lookahead based on discounted benefit and forecast demand, wherein the step of discounting future benefits is based on a future discounting algorithm (The combination of paragraph 105: "predicting future customer demand" and paragraph 250: "Various algorithms may be employed for one-variable

optimization problems, the most elementary type of optimization problem.” This teaches that the algorithms are used to determine both present and future information).

As per claims 3, 14 and 24, Boyd teaches the future discounting algorithm is based on a policy which, when faced with a choice between a guaranteed benefit immediately and a potential benefit in the future, a decision is made by comparing the guaranteed benefit value with a discounted value of the potential future benefit (The combination of paragraph 105: “predicting future customer demand” and paragraph 250: “Various algorithms may be employed for one-variable optimization problems, the most elementary type of optimization problem.” This teaches that the algorithms are used to determine both present and future information and since the objective of this teaching is to optimize price and profit, it would be inherent that the system would calculate both and chose the option that optimizes profit the most.).

As per claims 4-5, 15-16 and 25-26, Boyd teaches the future discounting algorithm is a deterministic algorithm (paragraph 250: “Various algorithms may be employed for one-variable optimization problems, the most elementary type of optimization problem”) that achieves a competitive ratio of $(1 + 1/L)^L \sqrt{L+1}$ (paragraph 101 indicates a calculated ratio as well), where L is a lookahead factor which models some amount of future demand known to a provider of the resource (paragraph 105 teaches determining future demand).

As per claim 6, teaches resource allocation is done to maximize a benefit (Paragraph 241 teaches a pricing optimization system which is trying to maximize the benefit of profit to the company).

As per claims 7 and 17, Boyd teaches the benefit is a tangible benefit (paragraph 241: pricing optimization in tangible).

As per claims 8, 18 and 27, Boyd teaches the tangible benefit is a profit and resource allocation is done to maximize the profit (paragraph 241: "The configurable pricing optimization system 1400 includes a price optimization application 1410 that operates by defining an optimization problem and producing an optimal pricing solution 1420 to the defined optimization problem. As described above, the present application describes a value evaluation and recommendation for promotions on a targeted product so as to analyze, evaluate, improve, and design promotions to meet a user's need. Other types of pricing optimization solution are also known." Whereby additional resources would be applied to the promotion that proves to be optimal).

As per claims 9-10 and 19-20, Boyd teaches the benefit is an intangible benefit, particularly customer satisfaction where resource allocation is done to maximize customer satisfaction (paragraph 241: "meet a user's need" is intangible and satisfies a customer).

As per claims 11 and 21, Boyd teaches the resource is computer cycles and resource allocation is done to more efficiently solve computationally intensive problems (paragraph 31: "promotion system 100 can solve this type of problem given certain inputs such as the target product, the total initial inventory for that product, and the amount of inventory that is to be sold for a given period. Promotion system 100 would then compute that discount which maximizes profit while clearing pre-identified excess inventory during the specified period.").

As per claim 12, teaches modeling the resource allocation problem mathematically (paragraph 37: "The CUSM 300 only looks to customer categories in which sales are independent events to avoid covariance terms in the mathematical evaluation of the market model created by the promotion pricing system 100."); dividing time into intervals of fixed length based on the assumption that demand is uniformly spread throughout each such interval (paragraph 43: "The DAM 500 may then determine a time interval at which to aggregate transaction volume data, step 530, on the basis of the number of time periods needed to estimate parameters, the incentive offer and price variation cycle, and data collection frequency." Whereby time interval represents a fixed length of time); and associating each customer's demand with a benefit gained (paragraph 241: "Turning now to FIG. 14, another embodiment of the present invention provides a configurable pricing optimization system 1400. The configurable pricing optimization system 1400 includes a price optimization application 1410 that operates by defining a optimization problem and producing an optimal pricing solution 1420 to the defined optimization problem. As described above, the present application describes a value evaluation and recommendation for promotions on a targeted product so as to analyze, evaluate, improve, and design promotions to meet a user's need" whereby the customer's demand for the product will affect price and improve the profit to the company) and finding a time-varying resource allocation that would maximize benefit gained (paragraph 241: the time varying resource is the "dynamic pricing system" since it changes periodically depending upon demand).

As per claim 22, teaches modeling the server allocation problem mathematically (paragraph 37: "The CUSM 300 only looks to customer categories in which sales are independent events to avoid covariance terms in the mathematical evaluation of the market model created by the promotion pricing system 100."); dividing time into intervals of fixed length based on the assumption that each site's demand is uniformly spread throughout each such interval (paragraph 43: "The DAM 500 may then determine a time interval at which to aggregate transaction volume data, step 530, on the basis of the number of time periods needed to estimate parameters, the incentive offer and price variation cycle, and data collection frequency." Whereby time interval represents a fixed length of time); maintaining server allocation fixed for the duration of an interval, servers being reallocated only at the beginning of an interval, and a reallocated server being unavailable for the length of the interval during which it is reallocated providing time to "scrub" the old site (customer data) to which the server was allocated, to reboot the server and to load the new site (820) to which the server has been allocated, each server having a rate of requests it can serve in a time interval (530) and customers share servers only in the sense of using the same servers at different times, but do not use the same servers at the same time (It is inherent in a computer system with a server (20) that the server is dedicated to one task at a time and that it has a rate at which it can handle requests and that old data would need to be removed and new information loaded onto it.); and associating each customer's demand with a benefit gained by the service provider (paragraph 241: "Turning now to FIG. 14, another embodiment of the present invention provides a configurable pricing optimization

system 1400. The configurable pricing optimization system 1400 includes a price optimization application 1410 that operates by defining a optimization problem and producing an optimal pricing solution 1420 to the defined optimization problem. As described above, the present application describes a value evaluation and recommendation for promotions on a targeted product so as to analyze, evaluate, improve, and design promotions to meet a user's need" whereby the customer's demand for the product will affect price and improve the profit to the company) in case a unit demand is satisfied and finding a time-varying server allocation that would maximize benefit gained by satisfying sites' demand (paragraph 241: the time varying resource is the "dynamic pricing system" since it changes periodically depending upon demand).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following art also teaches about resource allocation optimization: Dietrich et al (US 5,216,593), Shetty et al (US 6,954,931), Huberman et al (US 6,085,216), "IBM's new commercial parallel computing solution improves business decisions" by Nadine Taylor, Business Wire, December 7, 1994; and "Adaptive algorithms for managing a distributed data processing" by Aman et al, IBM Systems Journal, 1997, vol 36, issue 2, pg 242.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linda Krisciunas whose telephone number is 571-272-

Art Unit: 3623

6931. The examiner can normally be reached on Monday through Friday, 6:30 am to 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 571-272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LMK

LMK

January 13, 2006

Susanna Diaz
SUSANNA M. DIAZ
PRIMARY EXAMINER
Au 3623